UC / CSU / CCC
Sustainability Conference
July 31 – August 2, 2008

California Community College Summit

Sustainability through energy and resource efficient construction, rehabilitation, and operation of campus facilities

Fred Harris - CCC Chancellor's Office
Jose Nunez – San Mateo County CCD
Bob Bradshaw – Citrus CCD
Ron Beeler – North Orange County CCD
Mike Miller – Butte/Glenn CCD
Lisa Hannaman - Southern California Edison

California Community Colleges

A System Perspective

Fred Harris
Assistant Vice Chancellor for
Finance and Facilities Planning
California Community Colleges System Office

The Big Picture

Challenges and Opportunities for the California Community Colleges

- Evolving public policy and public opinion
- Environmental benefits of using less energy
  - Resource conservation, reduced air and water pollution
  - “Meeting the needs of future generations”
- Reduction of Greenhouse Gas emissions (AB 32)
  - Energy savings = Greenhouse Gas reduction
- Governor’s Green Building Initiative (Executive Order S20-05)
- CCC Board of Governors Sustainability Policy includes energy efficiency goals
- Integration with District Sustainability policies
- Economic benefits of Sustainability

System-wide Facilities Needs

Total system-wide unmet facilities needs are *$30 Billion* over 10 years

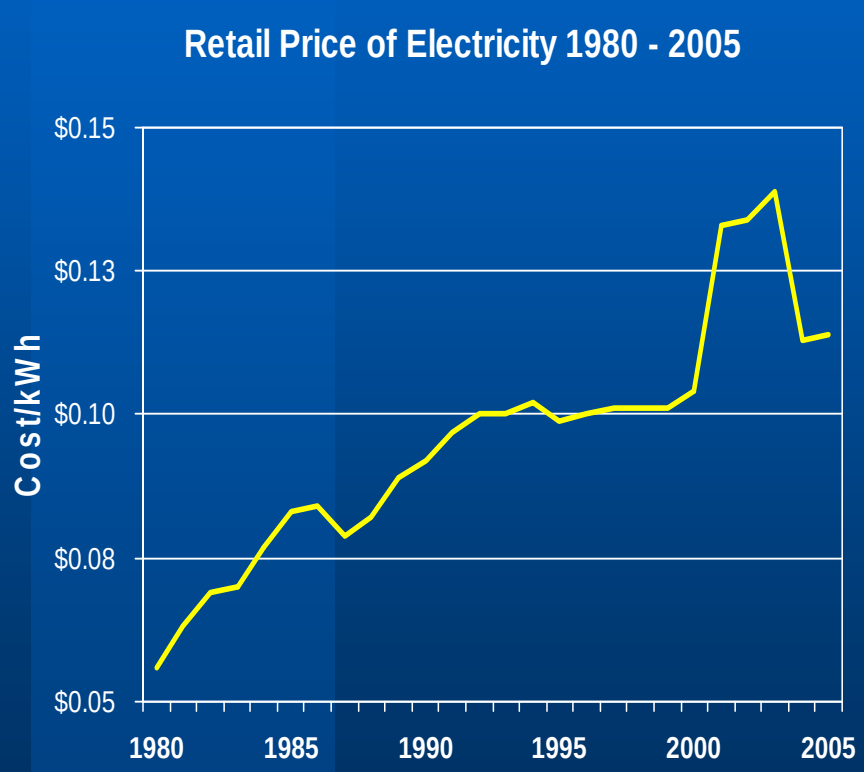
- **Need 12 million new ASF to support enrollment growth**
- **Need to modernize 27 million ASF of existing space**
  - **74% of total inventory over 25 years old**
  - **45% of total inventory over 40 years old**

There will NEVER be enough money!

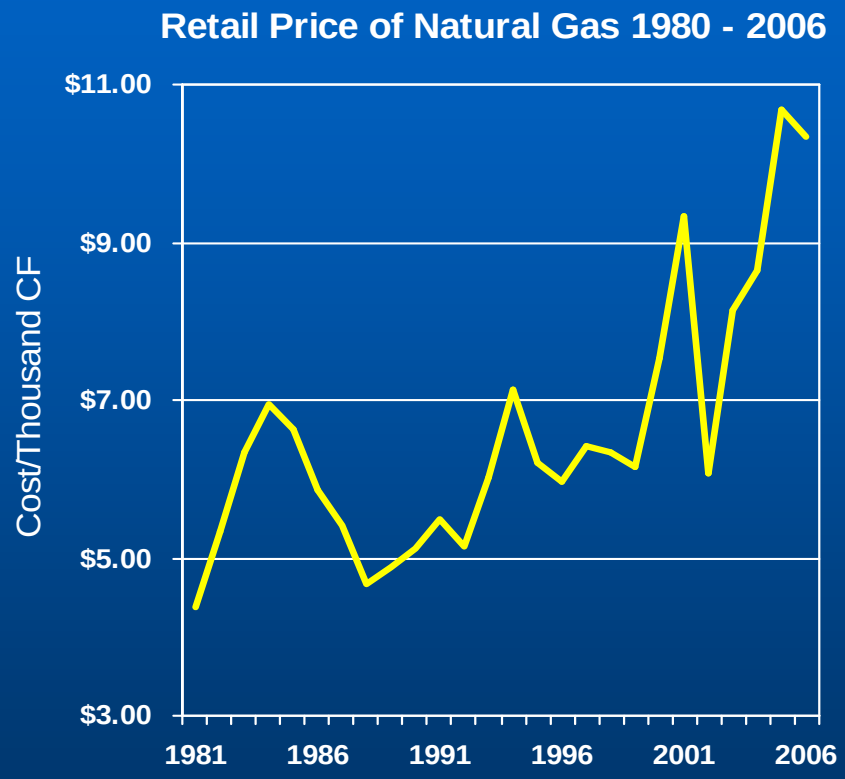
Need to continuously LEVERAGE current and future assets with other resources & process improvements to maximize benefits for our students, through:

- **Better Planning & Facility utilization**
- **Streamlined project delivery systems**
- **Forming strategic partnerships**
- **Benchmark to industry best practices**
- **Achieve Life cycle vs. first-cost savings**

The Cost of Doing Nothing



Source: California Energy Commission



Source: U.S. Energy Information Agency

Dollars spent on energy are dollars taken out of the classroom!

CCC-IOU Energy Efficiency Partnership

Estimated minimum 10-Year Life Cycle Benefits from proposed 2009-11 Partnership

- **10-Year Cumulative Energy Impacts**
  - **Electricity Savings: 725,562,048 kWh**
  - **Natural Gas Savings: 23,080,884 therms**

- **$1 for sustainable facilities yields $2 energy savings**
  - **Every $1 invested by a district for sustainable facilities improvements thru the 2009-11 Partnership will yield $2 in energy savings over the next 10 years**
  - **Result: Capital outlay investment *now* provides continuing relief to district support budget**

CCC Board of Governors Energy and Sustainability Policy

- **CCC Board of Governor's adopted an Energy and Sustainability Policy in January 2008**
- **Goal to reduce energy consumption from 2001-02 baseline consumption by 15% by the end of fiscal year 2011-12.**
- **Designed as a template for CCC Districts**
- **Beginning in 2010-11, incentive funding available for state funded projects:**
  - **2% of construction costs for New Buildings that exceed Title 24 by 15%**
  - **3% of construction costs for Modernization Projects that exceed Title 24 by 10%**

Campus Best Practices

San Mateo
Community College District

Jose Nunez
Vice Chancellor,
Facilities Planning and
Operations and Maintenance

San Mateo Community College District

CSM Science Bldg. 36 & Planetarium

42% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: $28 Million
GSF: 60, 904 SF

San Mateo Community College District

- **Skyline Bldg. 6 Student Union**
- **Skyline Bldg 7A Science Annex**

28% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: SKY 6 - $14.1M, SKY 7A – $19M
GSF: SKY 6 – 28, 975 SF , SKY 7A – 38,828 SF

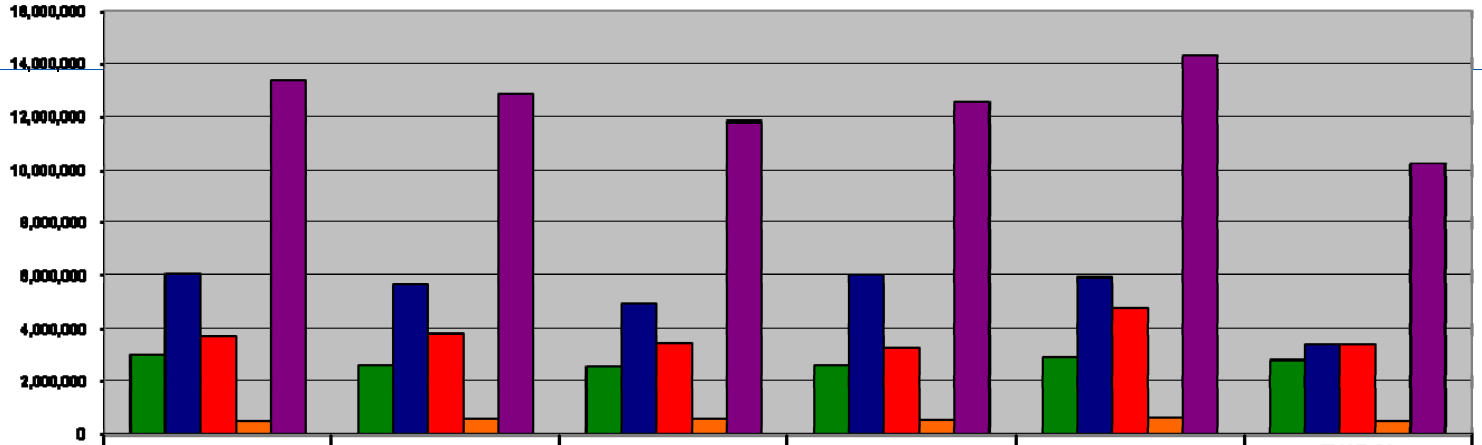
San Mateo Community College District

Canada Bldg. 9 Library / Learning Resource Center

30% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: $31.7M
GSF: 72,526 SF

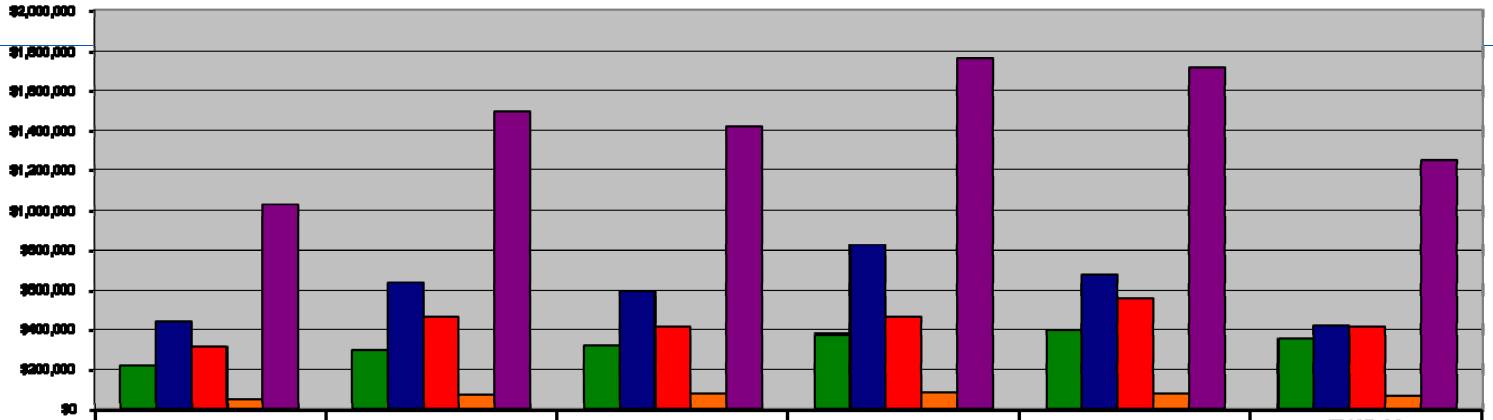
San Mateo Community College District
Energy Usage Trending



	FY02-03	FY03-04	FY04-05	FY05-06	FY06-07	FY07-08 (thru April 2008)
CAN	3,026,864	2,688,533	2,673,604	2,714,069	2,943,249	2,854,159
CSM	6,061,923	5,756,471	4,996,743	6,009,355	5,931,841	3,438,660
SKY	3,728,057	3,829,895	3,487,791	3,300,925	4,806,898	3,445,808
DO	568,616	658,283	655,274	600,530	697,638	570,894
Total	13,385,460	12,933,182	11,813,412	12,624,879	14,379,626	10,309,521

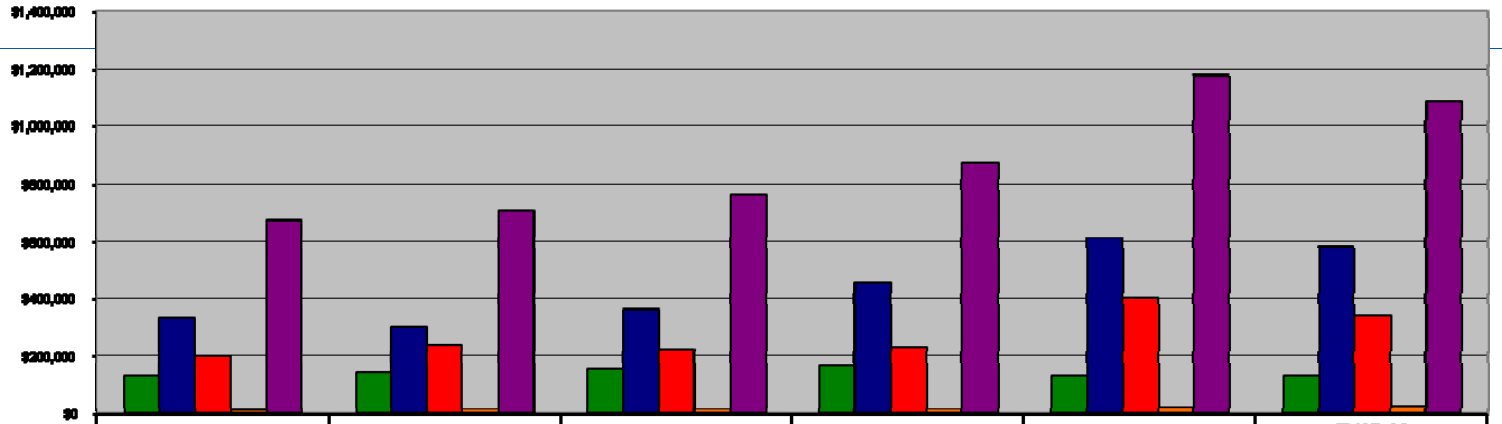
Note: 226,788 additional square feet
College of San Mateo Cogen: Maximum capacity 580 kw
Skyline College Cogen: Maximum capacity 375 kw

San Mateo CCD
Energy Usage Trending



	FY02-03	FY03-04	FY04-05	FY05-06	FY06-07	FY07-08 (thru April 2008)
CAN	$215,037	$303,261	$326,711	$374,200	$392,431	$359,516
CSM	$451,051	$639,941	$592,199	$825,435	$676,610	$414,158
SKY	$316,787	$471,693	$412,979	$475,542	$565,560	$412,604
DO	$54,285	$81,303	$86,140	$93,389	$83,916	$71,400
Total	$1,037,159	$1,496,198	$1,418,029	$1,768,566	$1,718,517	$1,257,678

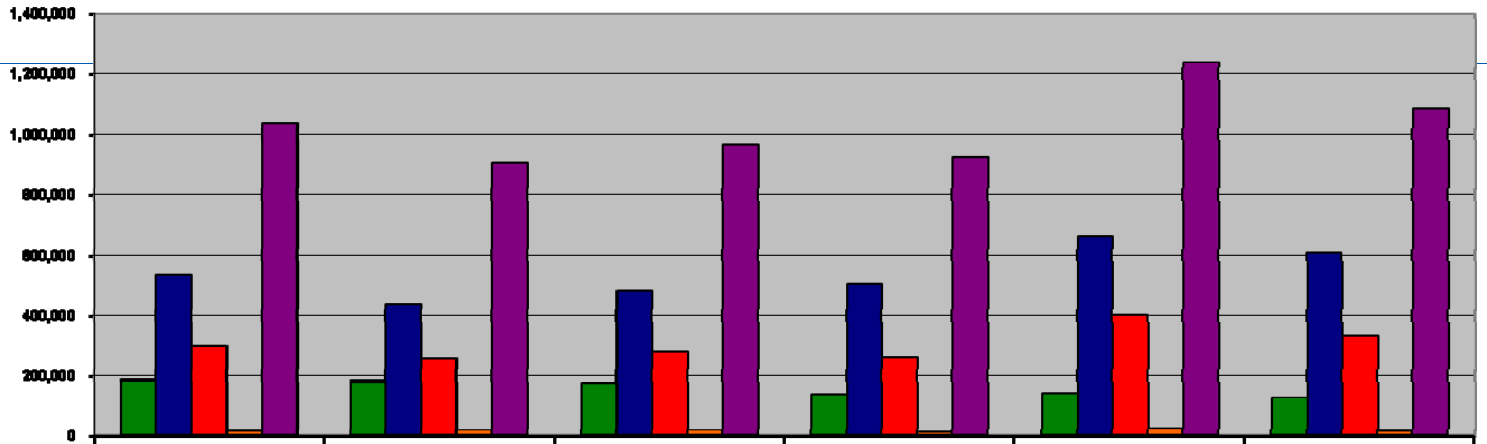
San Mateo Community College District
Energy Usage Trending



	FY02-03	FY03-04	FY04-05	FY05-06	FY06-07	FY07-08 (thru April 2008)
CAN	$132,756	$146,559	$157,670	$170,845	$134,086	$133,030
CSM	$335,870	$304,587	$363,643	$459,353	$814,278	$580,824
SKY	$198,076	$239,434	$224,769	$231,582	$399,543	$343,687
DO	$11,064	$16,569	$17,453	$15,005	$29,254	$32,569
Total	$677,766	$707,149	$763,535	$876,785	$1,177,160	$1,090,110

San Mateo Community College District
Energy Usage Trending

Natural Gas Usage by SIte (In therms)



	FY02-03	FY03-04	FY04-05	FY05-06	FY06-07	FY07-08 (thru April 2008)
CAN	186,357	182,695	177,937	140,379	144,843	129,841
CSM	537,838	443,703	487,179	509,644	669,909	608,747
SKY	303,212	262,516	284,769	266,228	401,605	336,742
DO	14,691	19,700	18,032	12,963	26,284	14,701
Total	1,042,098	908,614	967,917	929,214	1,242,641	1,090,031

San Mateo Community College District
Project Highlights

Energy Efficiency Rebates / Savings (to date)

- **Annual Operational Savings (Performance Based Contract)**
  - **$1.5m for entire district (electric, gas and water)**
- **PG&E Energy Efficiency**
  - **CAN Air Handler Retrofits: Jan 2002 - $27,000**
  - **DW High Efficiency Lighting Systems: July 2002 – $102,600**
  - **CSM & SKY Co-Generation: November 2004 – $878,557**
- **CCCCO / IOU / EE Partnership**
  - **CSM Gym VAV Retrofit Project, CSM Lobby Chiller Replacement Project, and SKY Gym VAV Retrofit Project :December 2006 - $81,051**
- **Savings by Design**
  - **CSM B35: Summer 2006 - $2,400**
  - **CSM B36: November 2006 - $56,117**
  - **SKY B6/7A : May 2007 - $38,546**
  - **CAN 9: March 2008 - $24,927**
  - **CAN FMC: Estimated $5,810**
  - **SKY FMC: Estimated $2,130**

San Mateo Community College District
Project Highlights

Energy Efficiency (LEED / Savings by Design)

- **Upcoming New Buildings**
  - **Cañada College: Facilities Maintenance Center (FMC) – 18,899 gsf**
    - **Total Contract Amount: $9.8M**
  - **Skyline College: Facilities Maintenance Center (FMC) – 13,491 gsf**
    - **Total Contract Amount: $8.3M**
  - **CSM Design Build (2 Bldgs)**
    - **Workforce / Wellness / Aquatic Center (5N) - 88,374 gsf**
    - **Student Services / Admin. / Student Activities (10N) – 104,149 gsf**
    - **Overall Campus Landscape & Hardscape**
    - **Total Contract Amount: $142.5 Million**
  - **SKY Design Build (2 Bldgs)**
    - **Cosmetology & Administration/Wellness Center (4N) – 70,310 gsf**
    - **Automotive Technology Building (11N) – 8,800 gsf**
    - **Overall Campus Landscape & Hardscape**
    - **Total Contract Amount: $60.4 Million**

San Mateo Community College District
Project Highlights

Energy Efficiency

- **CCC / IOU Partnership**
  - **Cañada 16/18 – Estimated PG&E Incentive $18,720**
  - **Cañada 5/6/8 – Form 2 submitted**
  - **College of San Mateo 2/4 – Form 2 submitted**
  - **College of San Mateo 14/16 – Form 2 submitted**
  - **Skyline 5 Lighting – Form 2 submitted**
  - **Skyline 7 – Estimated PG&E Incentive $12,211**
  - **District Wide Parking Lot Lighting – Estimated PG&E Incentive $28,127**

Campus Best Practices

North Orange County
Community College District

Ron Beeler
Facilities Director

North Orange County Community College District

CCC/IOU Partnership Approved Projects

- **Replace campus cooling equipment with central plant**
- **Replace gym lighting with fluorescent**
- **Replace outdoor lighting with pulse start metal halides**
- **Install VFDs on fans in several buildings**

Total District Savings – 3,585,934 kWh/yr

Total District Incentive – $1,059,653

North Orange County Community College District

Fullerton College – Central Plant

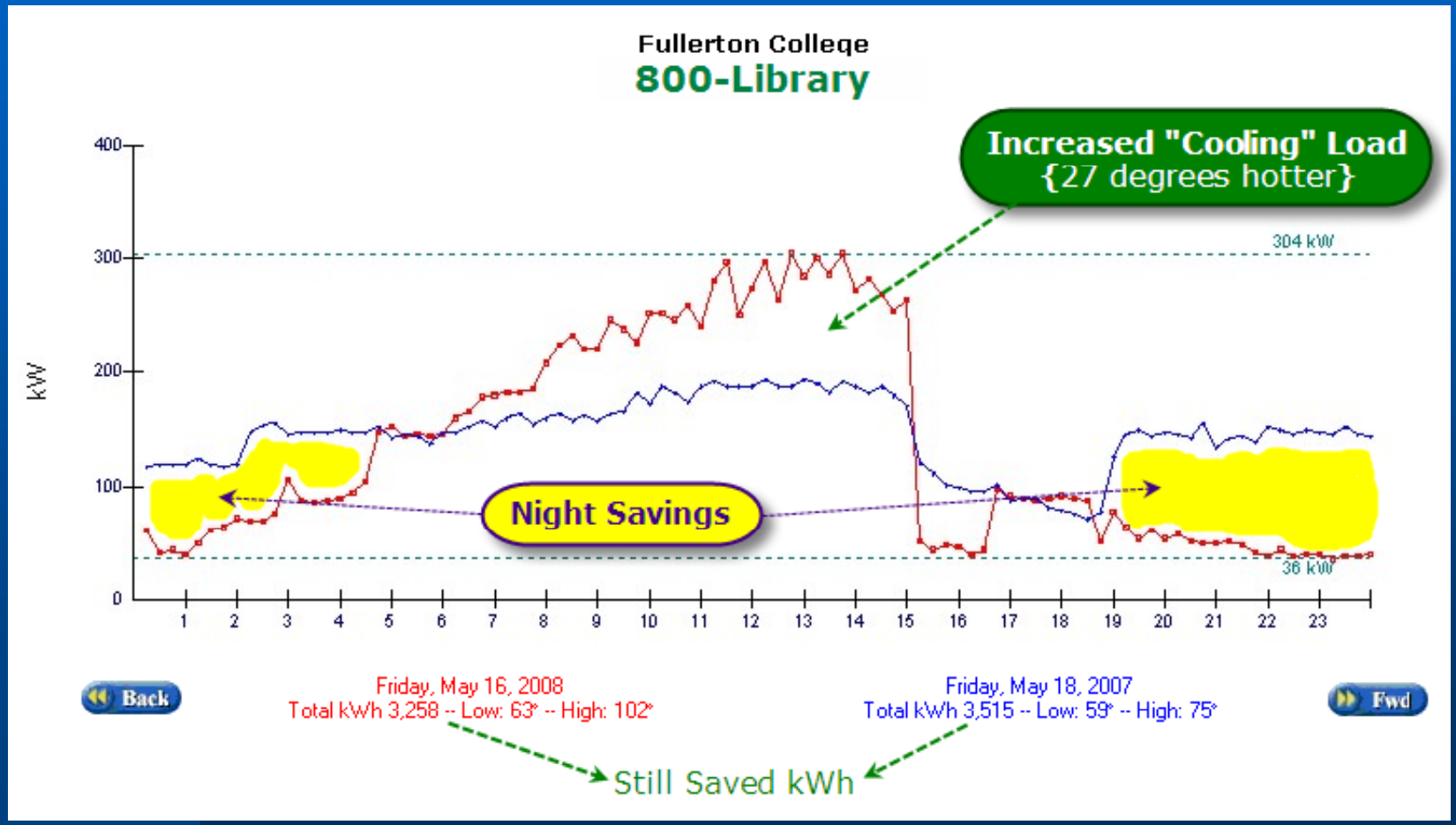
Life Cycle Cost Analysis Summary
25 Year Project Life

Capital Investment	$12,006,000	
Annual Electricity Savings	1,300,000	kWh
Annual Electricity Savings (Year 1)	$182,004	
Avoided Capital Investments	$10,679,475	
Life Cycle Electric Savings	$6,977,753	
Life Cycle Maintenance Savings	$311,500	
Total Life Cycle Savings	$17,968,728	
Net Life Cycle Benefit	$5,962,728	
25-Year Net Present Value*	$1,507,003	

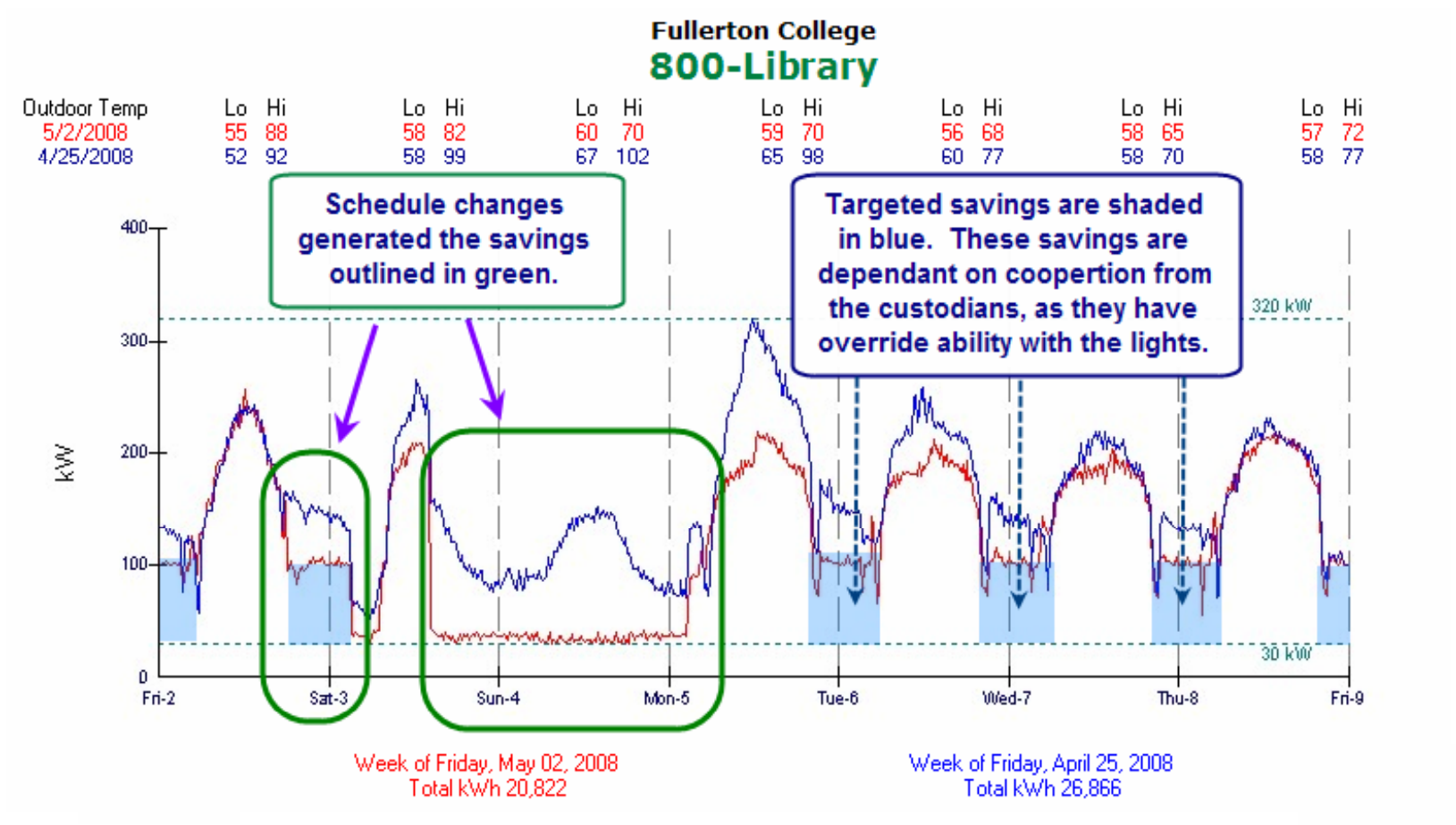
*Assumptions:

- 3.85% Escalation for Electricity and O&M savings
- 4% Discount Factor for NPV

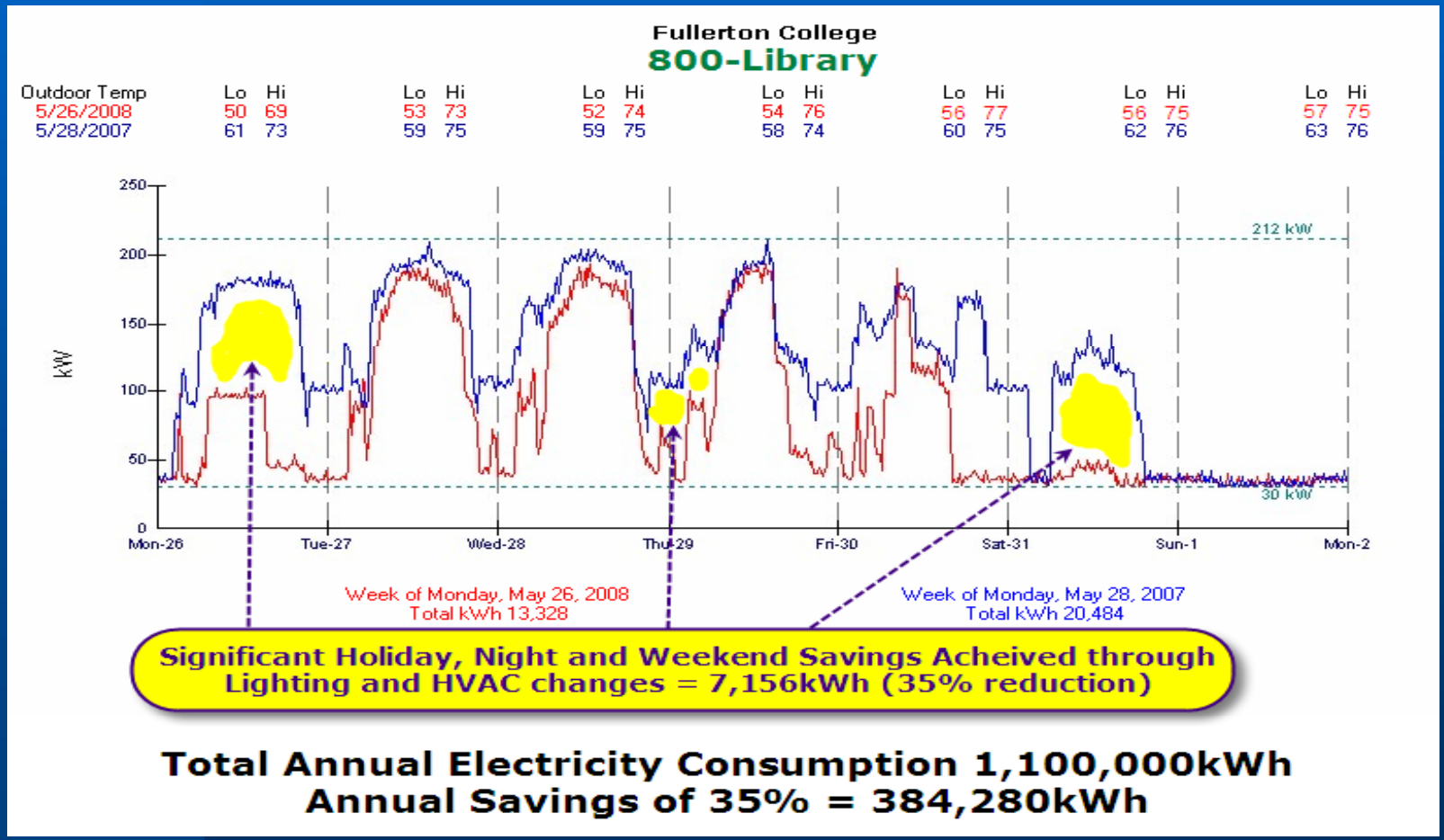
North Orange County CCD
Interval Metering Program



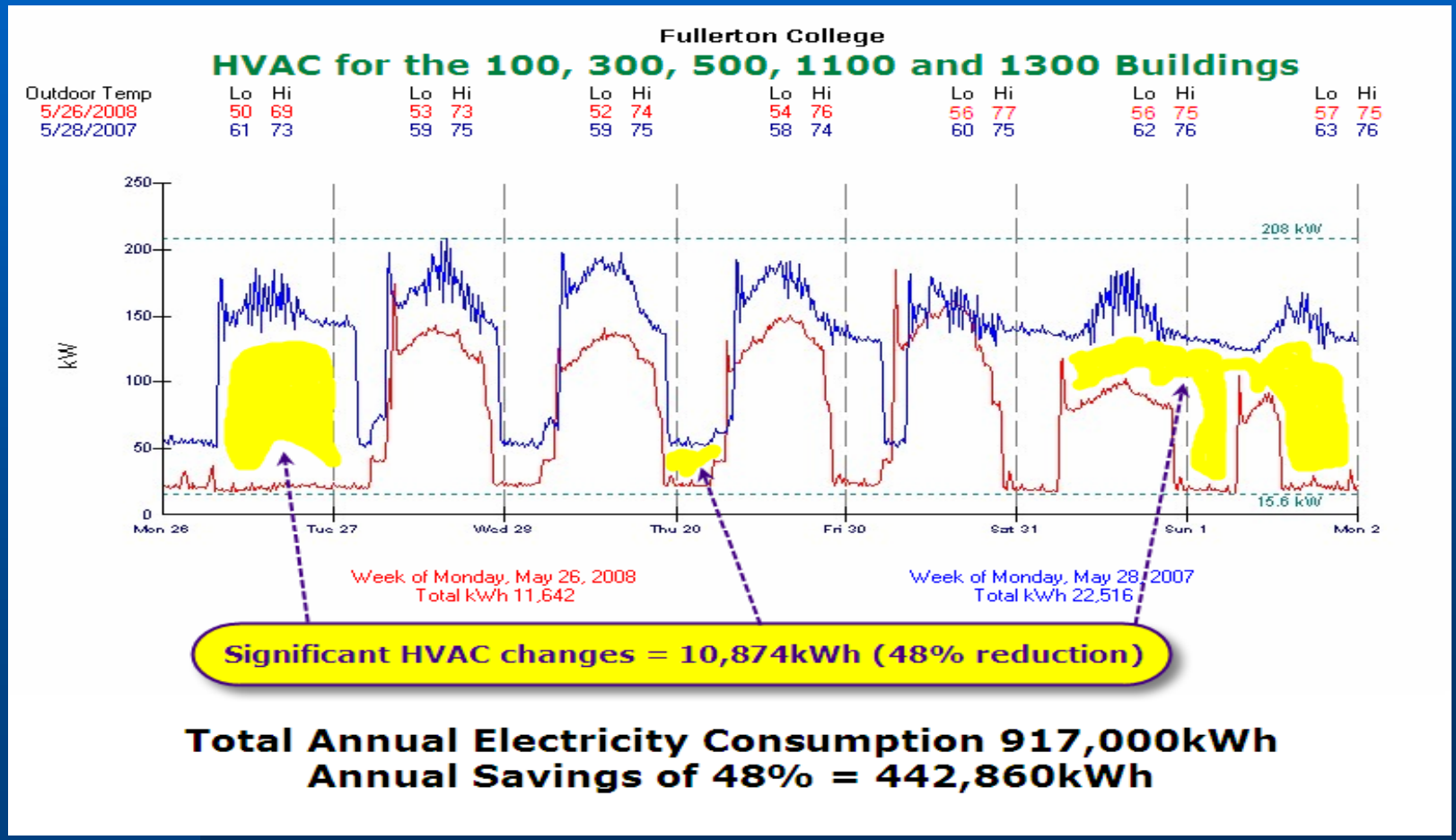
North Orange County CCD
Interval Metering Program



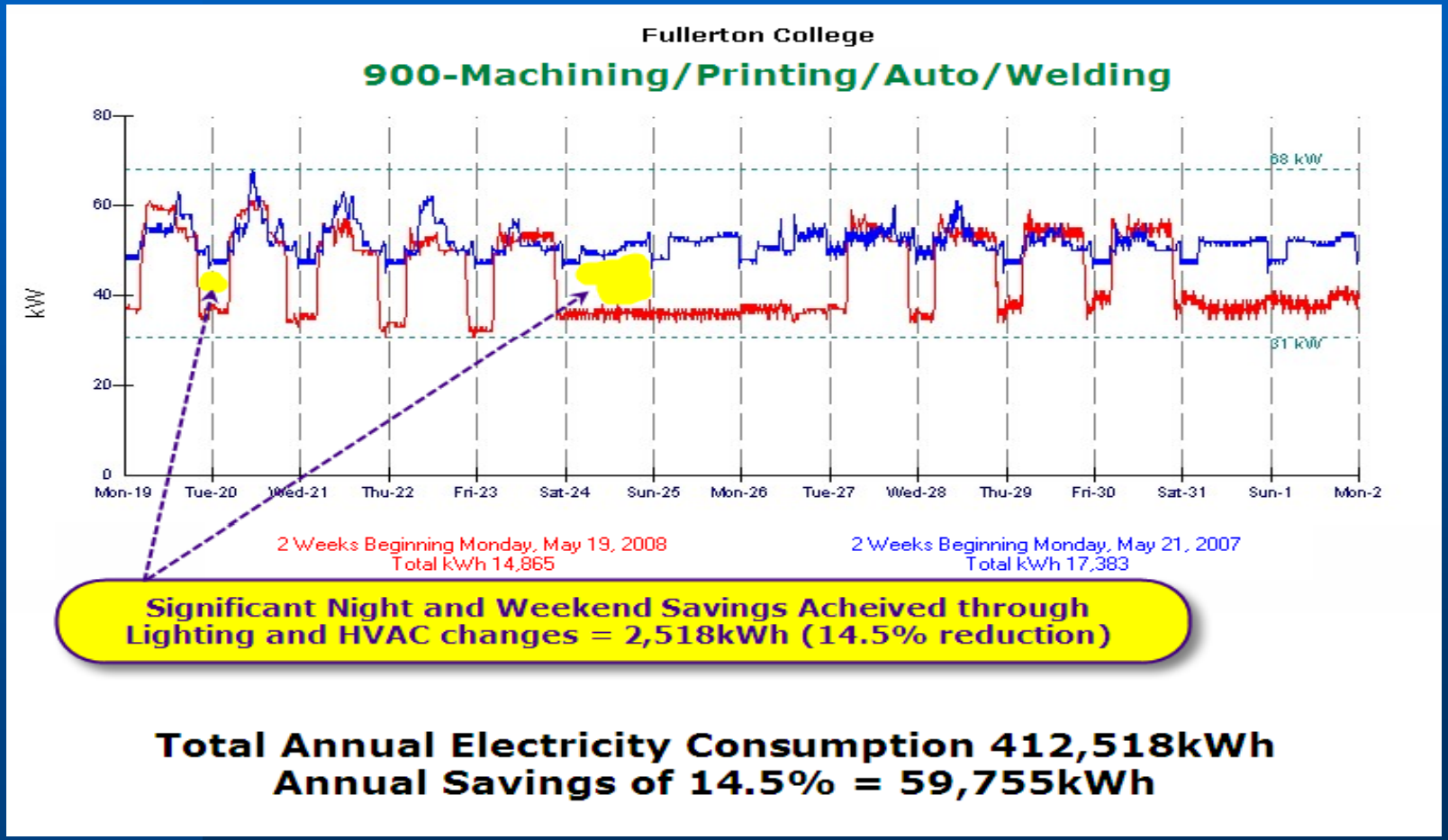
North Orange County CCD
Interval Metering Program



North Orange County CCD
Interval Metering Program



North Orange County CCD
Interval Metering Program



Campus Best Practices

Citrus Community College District

Bob Bradshaw
Construction Program Manager

Citrus Community College District

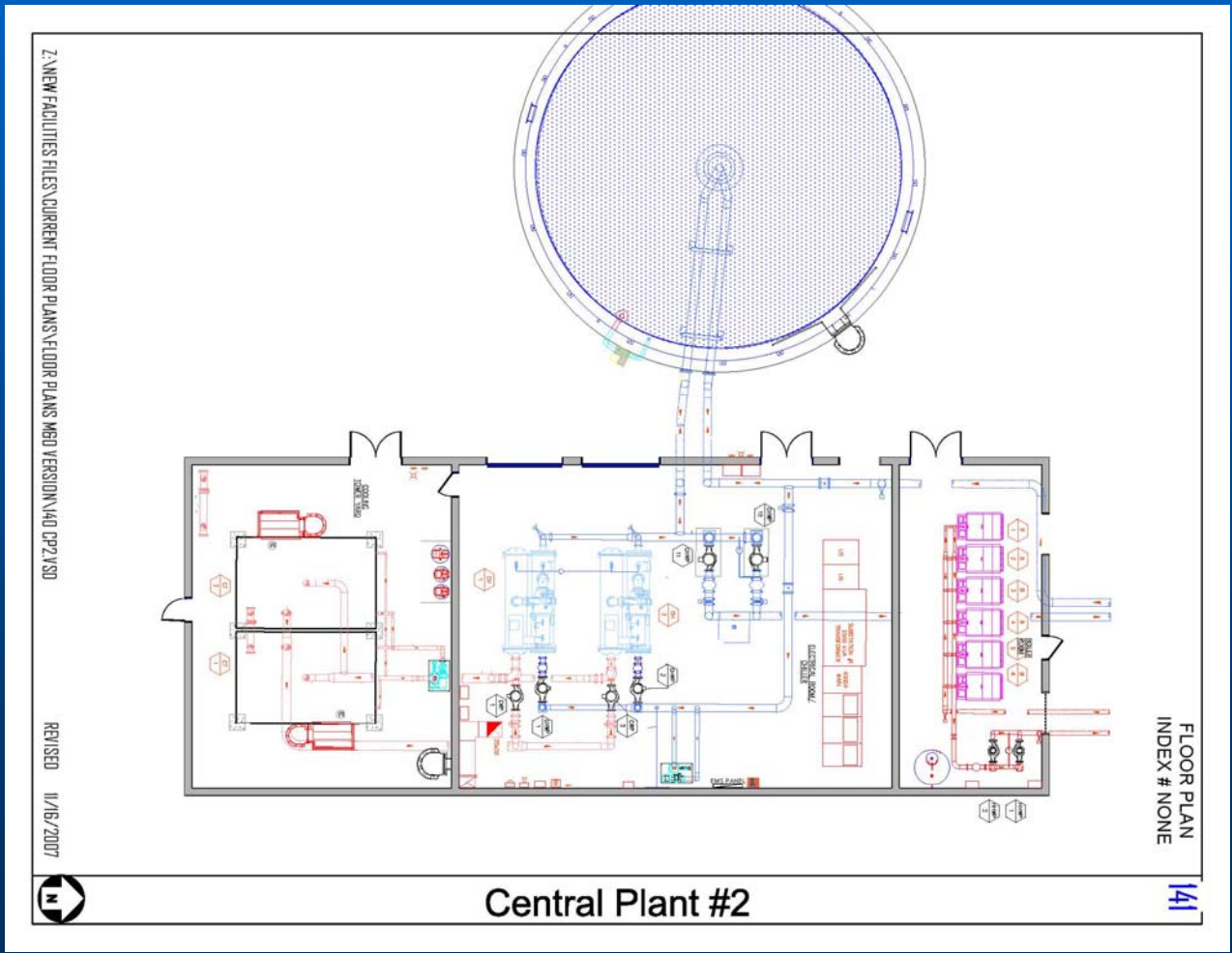
Partnership Projects Approved

- New central plant with thermal energy storage
- Replace HVAC units with VAV system, upgrade controls
- Replace exit signs with LEDs
- New boilers

Total District Savings –1,113,621 kWh/yr and 18,495 th/yr
Total District Incentive – $318,982

Citrus Community College District

New Central Plant Floor Plan



Citrus Community College District

Central Plant Project

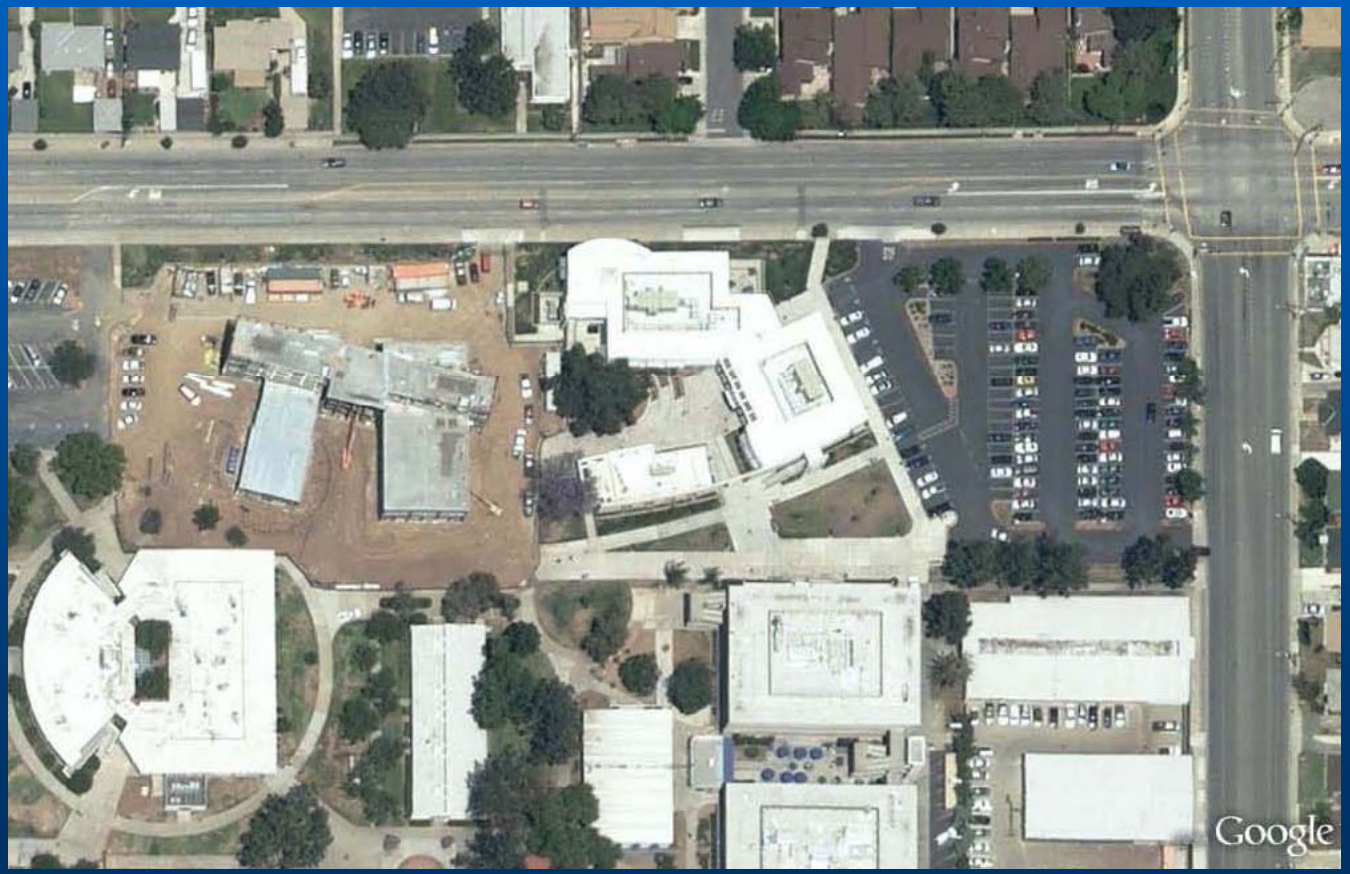
Life Cycle Cost Analysis Summary
20 Year Project Life

Capital Investment	$11,308,408
Annual Electricity Savings	1,000,007
Annual Gas Savings	18,495
Annual Energy Savings (Year 1)	$255,036
Avoided Capital Investments	$12,300,000
Life Cycle Electric Savings	$3,104,445
Life Cycle Maintenance Savings	$1,986,202
Total Life Cycle Savings	$17,390,647
Net Life Cycle Benefit	$6,082,239
20-Year Net Present Value*	$4,032,898

*Assumptions:
- 3% Escalation for energy savings
- 2.85% Escalation for O&M savings
- 6% Discount Factor for NPV

Citrus Community College District

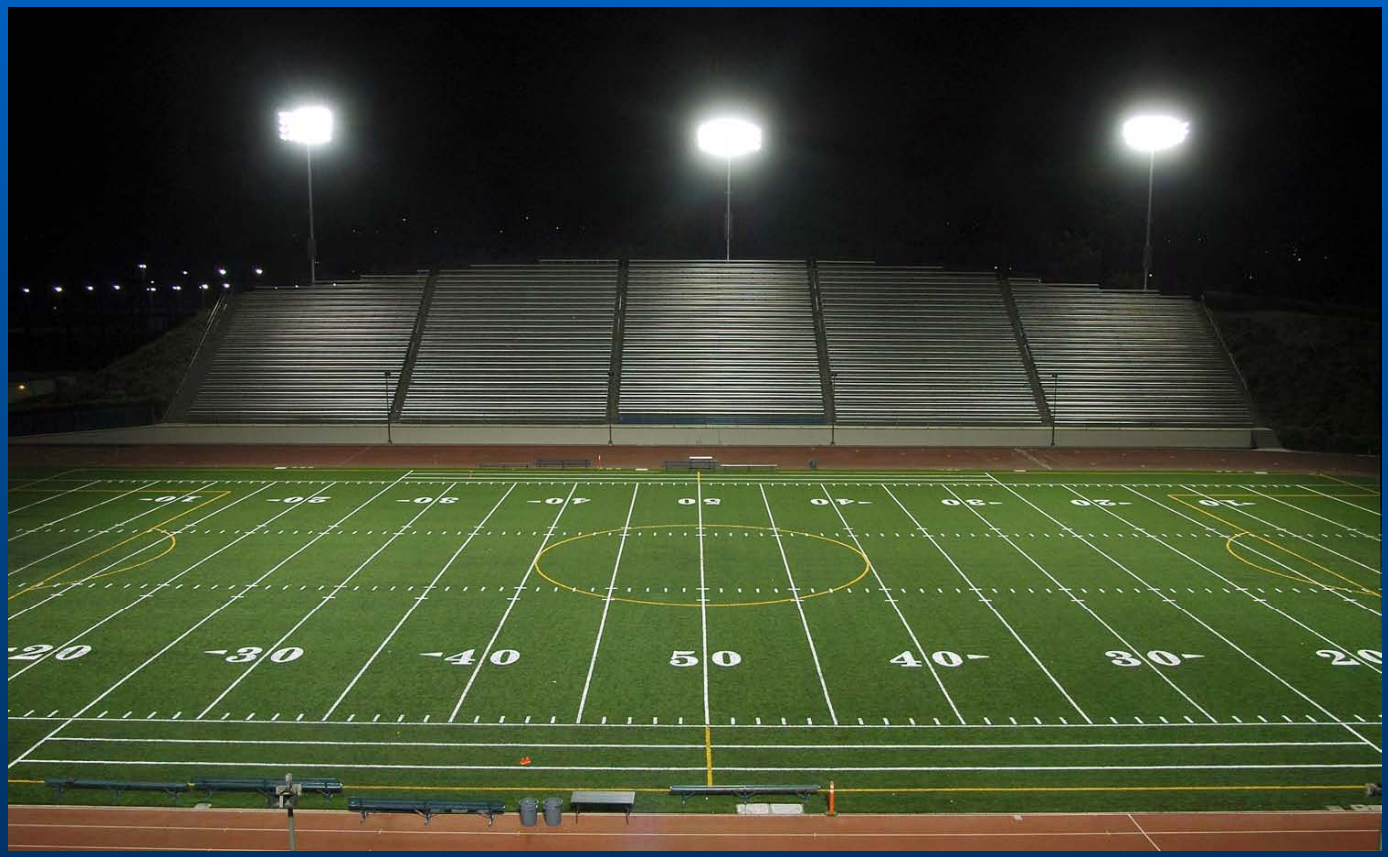
Cool Roofs



Citrus Community College District

New Efficient Stadium Lights

Artificial Turf



Citrus Community College District

PIER-CCC Pilot Program

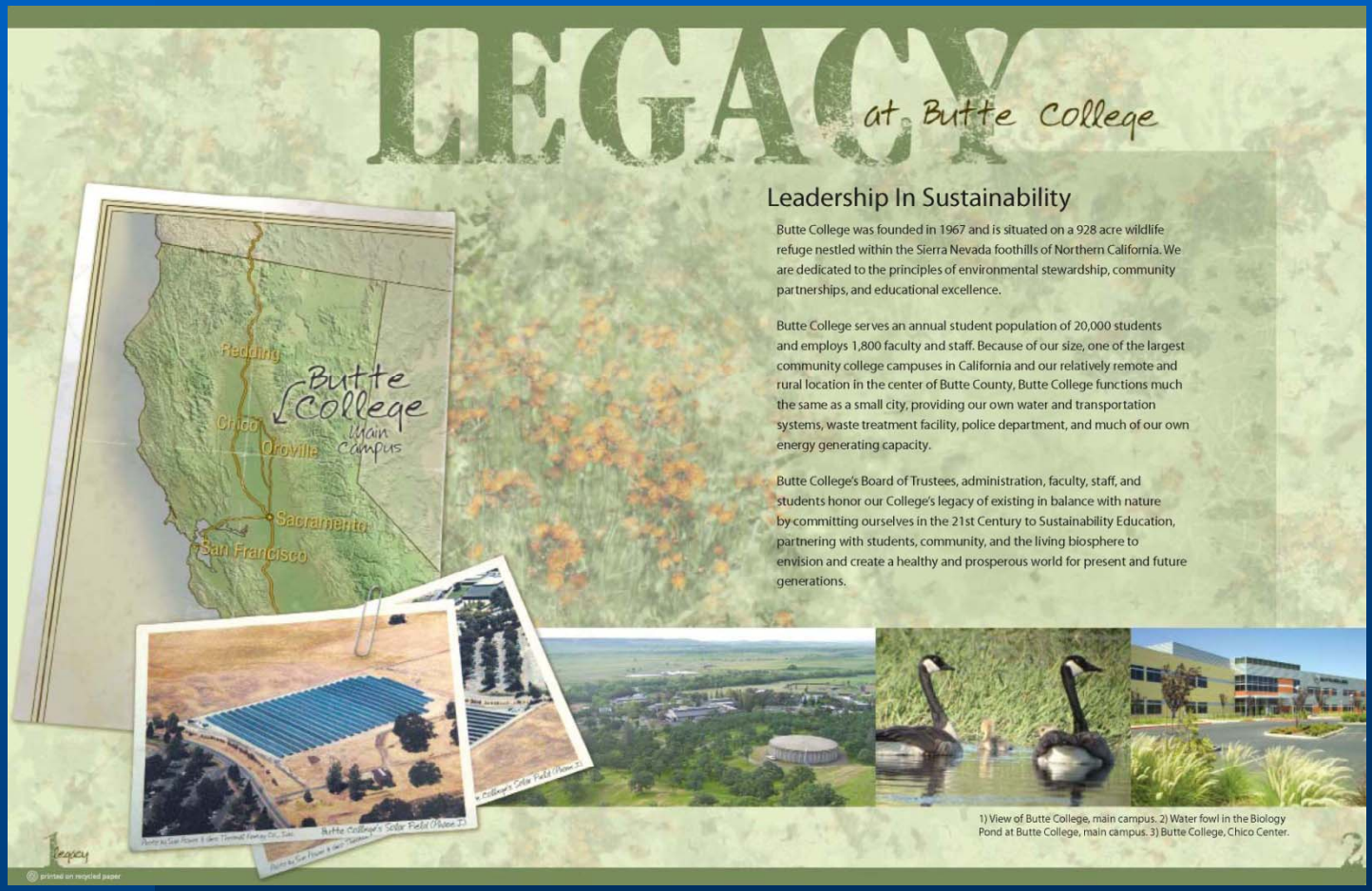
- **Integrated Classroom Lighting Project at Citrus College**
- **Estimated to save 50% more than Title-24 requirements**

Campus Best Practices

Butte College

Mike Miller
Director of Facilities Planning and Management

Butte College

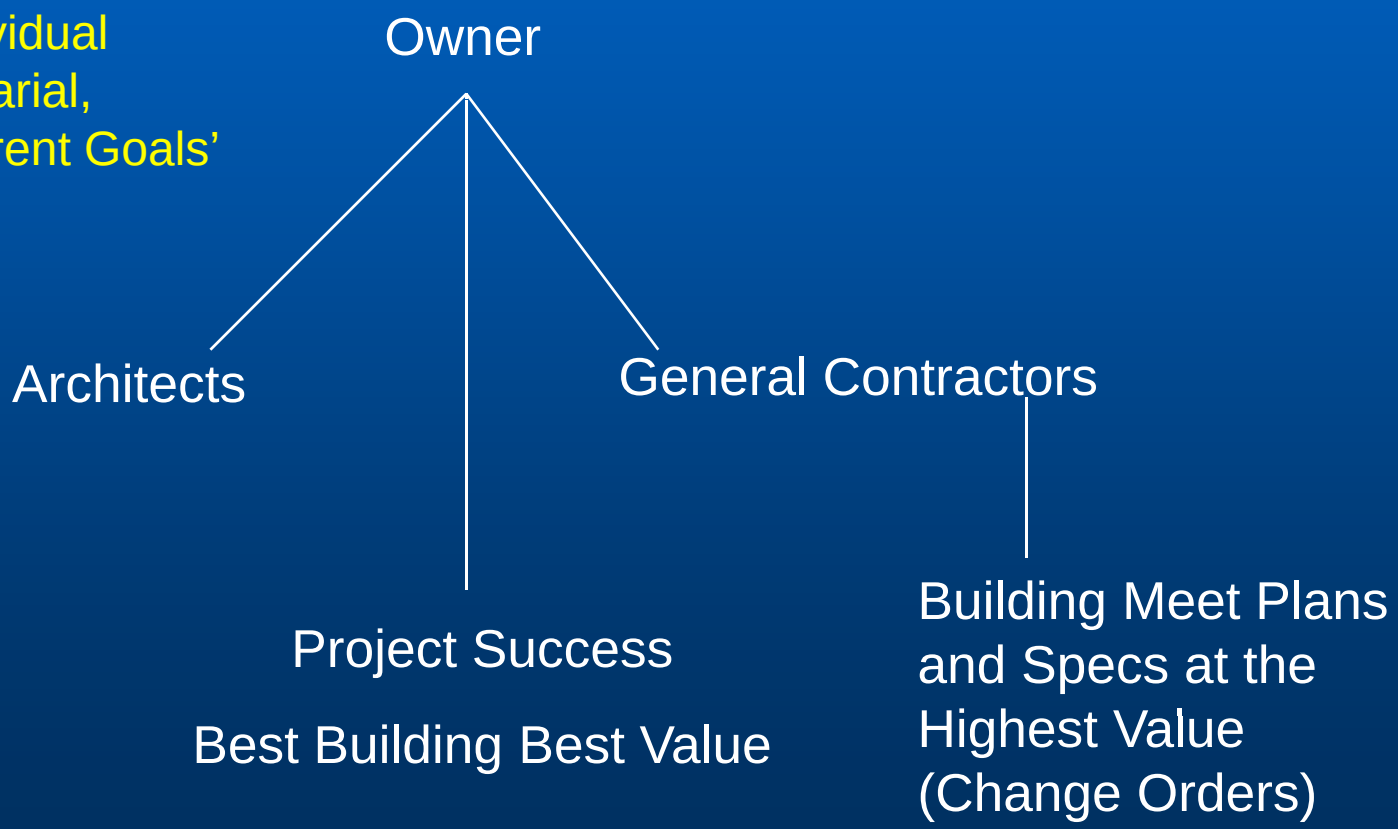


Butte College

Using an existing developed site with native landscape, Blue Oak preservation.

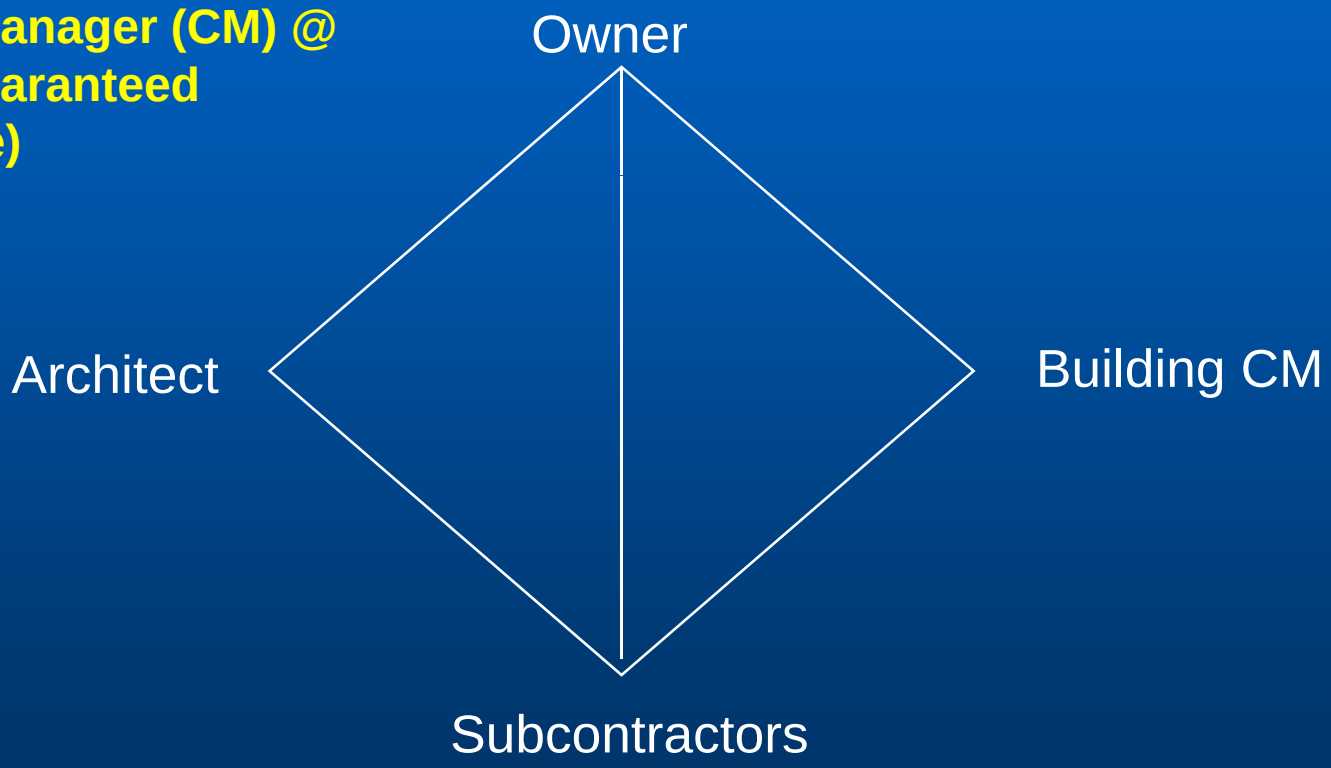
Butte College

Typical Hard Bid
‘ By Nature of Individual Interests – Adversarial, Parties Have Different Goals’



Butte College

Construction Manager (CM) @ Risk GMAX (guaranteed maximum price)



Set and insist on standards especially Title 24 – 15%

Butte College

Chico Center

Exceeds Title 24 by 19%. Day lighting in all classroom spaces, and lighting and air conditioning occupancy sensors.

Butte College

Learning Resources Center

- **The Learning Resource Center (LRC) was State funded with Measure A component**
- **Size: 72,000 square feet**
- **Includes classrooms, the Center for Academic Success, computer labs, and offices**
- **Total project cost: $21,700,000**
- **Completed January 2006**

Change Orders = 3.5%

30% better than Title 24

Butte College

Library Renovation/Expansion

- **Originally 100% funded by Measure A; now funded by State (Prop 55) and Measure A.**
- **Includes 10 small classrooms, 3 large classrooms, TV studio, radio/TV/film program lab, and double library space and significantly increase access to on-line resources**
- **Total project cost: $19,700,000**
- **Construction began March 2006 and will be completed July 2007.**

Change Orders = 2.7%

29% better than Title 24

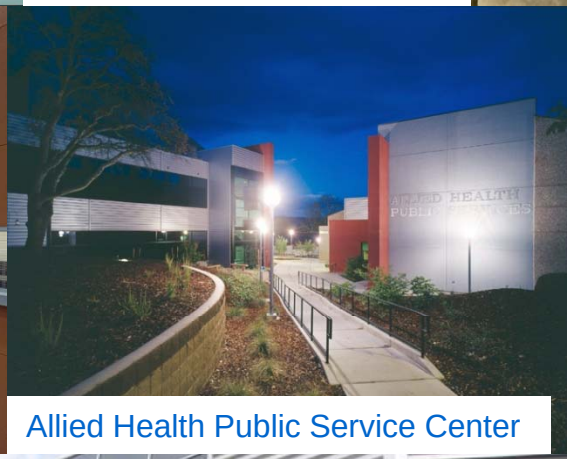
Learning Resource Center

Chico Center

Learning Resource Center

Allied Health Public Service Center

Learning Resource Center



Allied Health Public Service Center

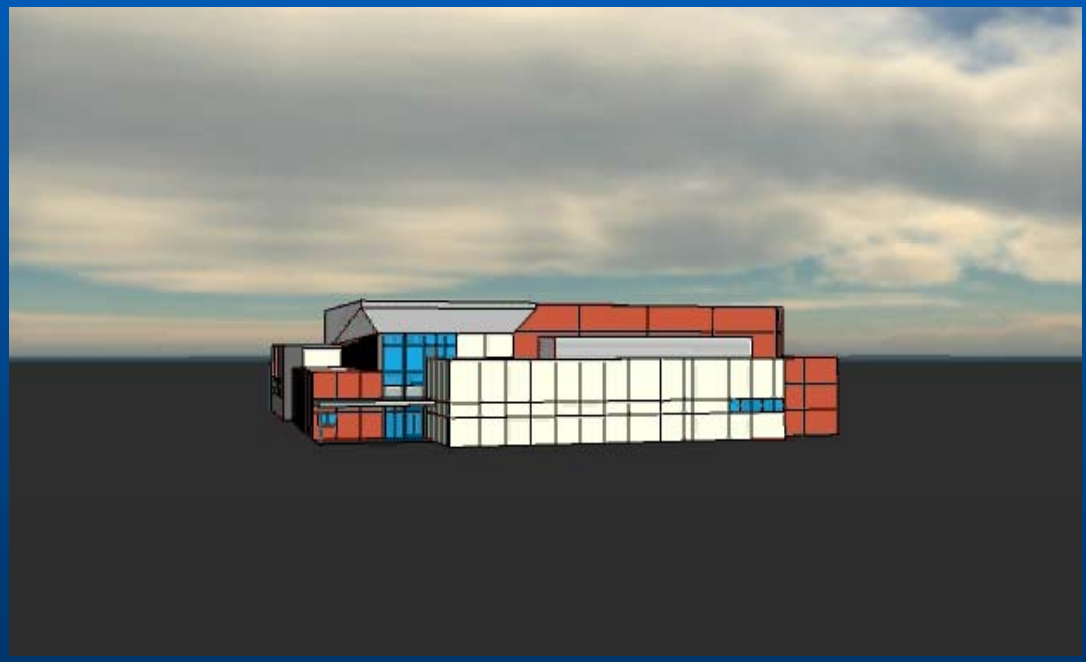
Chico Center

Chico Center

Chico Center

Butte College

Instructional Arts Building



Goal – LEED Certified

Two story, 72,000 square feet

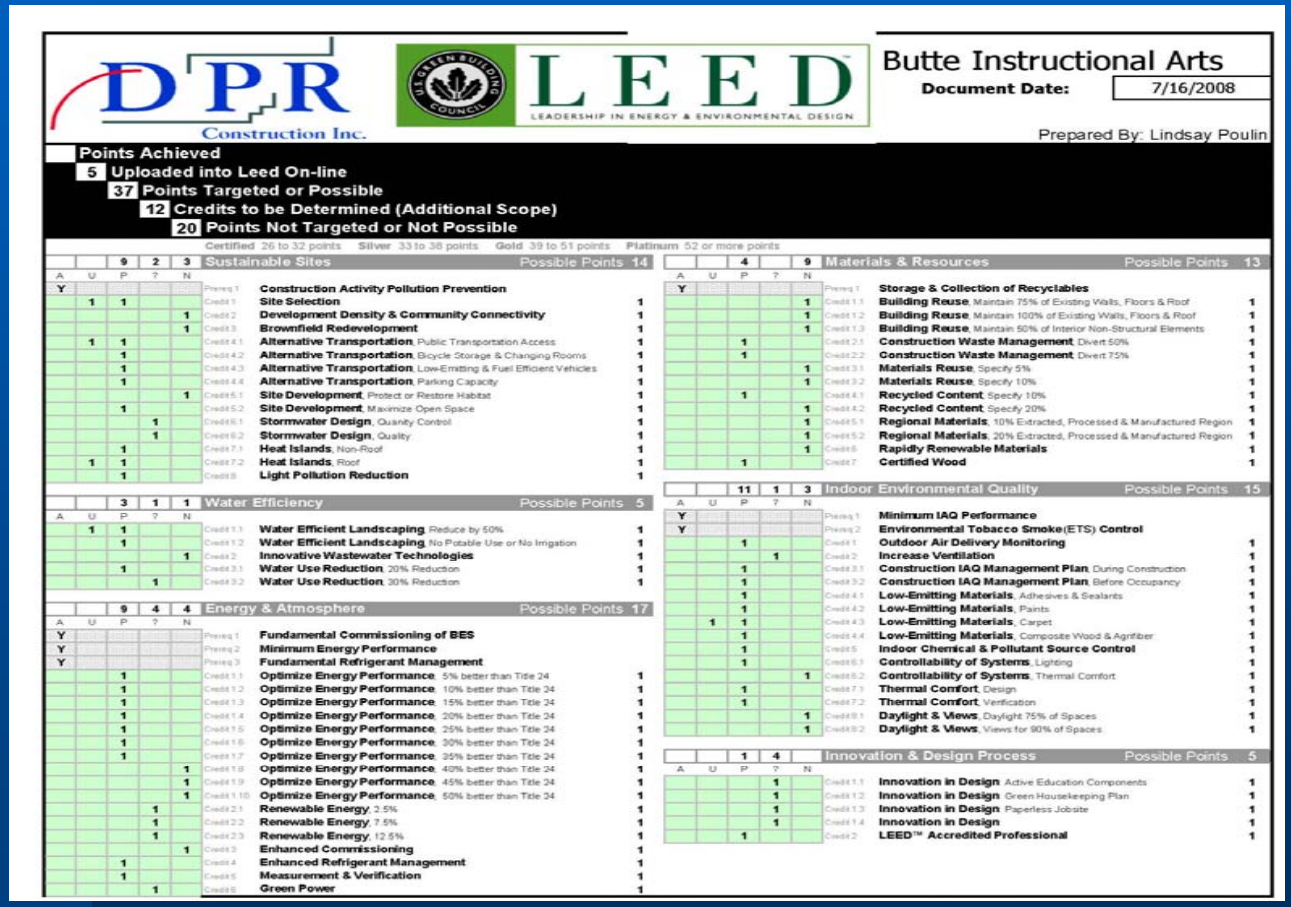
Butte College

Instructional Arts Building

- LEED costs money but payback is fast and on-going
- $18.6 million - construction costs
- $265K - LEED certification, measurement and verification
- Now Title 24 – 30%
- Payback is 3.5 years – ongoing savings of $75.6K/year
- Utility savings and life cycle cost of equipment
- Energy savings - $0.20 cents/sq ft/year = $14,400.00
- Facilities lifecycle mechanical savings - $0.85 cents/sq ft/year = $61,200.00
- LEED Certified Silver **Gold!!!**

$258 per sq. ft

Butte College



DPR Construction Inc.

LEED — LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Butte Instructional Arts

Document Date: 7/16/2008

Prepared By: Lindsay Poulin

Points Achieved

5 Uploaded into Leed On-line

37 Points Targeted or Possible

12 Credits to be Determined (Additional Scope)

20 Points Not Targeted or Not Possible

Certified 26 to 32 points Silver 33 to 38 points Gold 39 to 51 points Platinum 52 or more points

Sustainable Sites — Possible Points 14 (A: 9, U: 2, P: 3)

Y		Prereq 1	Construction Activity Pollution Prevention
1	1	Credit 1	Site Selection 1
	1	Credit 2	Development Density & Community Connectivity 1
	1	Credit 3	Brownfield Redevelopment 1
1	1	Credit 4.1	Alternative Transportation, Public Transportation Access 1
	1	Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms 1
	1	Credit 4.3	Alternative Transportation, Low-Emitting & Fuel Efficient Vehicles 1
	1	Credit 4.4	Alternative Transportation, Parking Capacity 1
	1	Credit 5.1	Site Development, Protect or Restore Habitat 1
	1	Credit 5.2	Site Development, Maximize Open Space 1
1		Credit 6.1	Stormwater Design, Quantity Control 1
1		Credit 6.2	Stormwater Design, Quality 1
	1	Credit 7.1	Heat Islands, Non-Roof 1
1	1	Credit 7.2	Heat Islands, Roof 1
	1	Credit 8	Light Pollution Reduction 1

Water Efficiency — Possible Points 5 (A: 3, U: 1, P: 1)

1	1	Credit 1.1	Water Efficient Landscaping, Reduce by 50% 1
	1	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation 1
	1	Credit 2	Innovative Wastewater Technologies 1
1		Credit 3.1	Water Use Reduction, 20% Reduction 1
	1	Credit 3.2	Water Use Reduction, 30% Reduction 1

Energy & Atmosphere — Possible Points 17 (A: 9, U: 4, P: 4)

Y		Prereq 1	Fundamental Commissioning of BES
Y		Prereq 2	Minimum Energy Performance
Y		Prereq 3	Fundamental Refrigerant Management
1		Credit 1.1	Optimize Energy Performance, 5% better than Title 24 1
1		Credit 1.2	Optimize Energy Performance, 10% better than Title 24 1
1		Credit 1.3	Optimize Energy Performance, 15% better than Title 24 1
1		Credit 1.4	Optimize Energy Performance, 20% better than Title 24 1
1		Credit 1.5	Optimize Energy Performance, 25% better than Title 24 1
1		Credit 1.6	Optimize Energy Performance, 30% better than Title 24 1
1		Credit 1.7	Optimize Energy Performance, 35% better than Title 24 1
	1	Credit 1.8	Optimize Energy Performance, 40% better than Title 24 1
	1	Credit 1.9	Optimize Energy Performance, 45% better than Title 24 1
	1	Credit 1.10	Optimize Energy Performance, 50% better than Title 24 1
		Credit 2.1	Renewable Energy, 2.5% 1
		Credit 2.2	Renewable Energy, 7.5% 1
		Credit 2.3	Renewable Energy, 12.5% 1
	1	Credit 3	Enhanced Commissioning 1
1		Credit 4	Enhanced Refrigerant Management 1
1		Credit 5	Measurement & Verification 1
		Credit 6	Green Power 1

Materials & Resources — Possible Points 13 (A: 4, P: 9)

Y		Prereq 1	Storage & Collection of Recyclables
	1	Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof 1
	1	Credit 1.2	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof 1
	1	Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements 1
1		Credit 2.1	Construction Waste Management, Divert 50% 1
1		Credit 2.2	Construction Waste Management, Divert 75% 1
	1	Credit 3.1	Materials Reuse, Specify 5% 1
	1	Credit 3.2	Materials Reuse, Specify 10% 1
1		Credit 4.1	Recycled Content, Specify 10% 1
	1	Credit 4.2	Recycled Content, Specify 20% 1
	1	Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Region 1
	1	Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Region 1
	1	Credit 6	Rapidly Renewable Materials 1
1		Credit 7	Certified Wood 1

Indoor Environmental Quality — Possible Points 15 (A: 11, U: 1, P: 3)

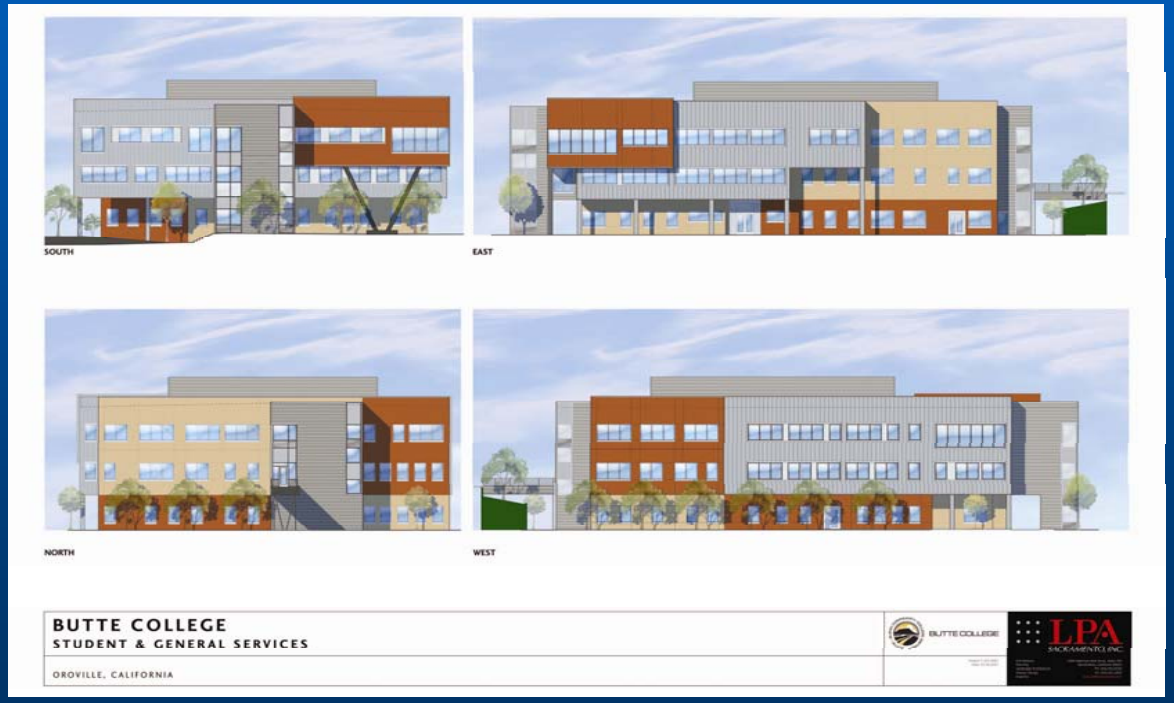
Y		Prereq 1	Minimum IAQ Performance
Y		Prereq 2	Environmental Tobacco Smoke (ETS) Control
1		Credit 1	Outdoor Air Delivery Monitoring 1
	1	Credit 2	Increase Ventilation 1
1		Credit 3.1	Construction IAQ Management Plan, During Construction 1
1		Credit 3.2	Construction IAQ Management Plan, Before Occupancy 1
1		Credit 4.1	Low-Emitting Materials, Adhesives & Sealants 1
1		Credit 4.2	Low-Emitting Materials, Paints 1
1	1	Credit 4.3	Low-Emitting Materials, Carpet 1
1		Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber 1
1		Credit 5	Indoor Chemical & Pollutant Source Control 1
1		Credit 6.1	Controllability of Systems, Lighting 1
	1	Credit 6.2	Controllability of Systems, Thermal Comfort 1
1		Credit 7.1	Thermal Comfort, Design 1
1		Credit 7.2	Thermal Comfort, Verification 1
	1	Credit 8.1	Daylight & Views, Daylight 75% of Spaces 1
	1	Credit 8.2	Daylight & Views, Views for 90% of Spaces 1

Innovation & Design Process — Possible Points 5 (P: 1, ?: 4)

	1	Credit 1.1	Innovation in Design, Active Education Components 1
	1	Credit 1.2	Innovation in Design, Green Housekeeping Plan 1
	1	Credit 1.3	Innovation in Design, Paperless Jobsite 1
	1	Credit 1.4	Innovation in Design 1
1		Credit 2	LEED™ Accredited Professional 1

Butte College

Student and General Services



Three story, 56,000 square feet

Goal – LEED certified

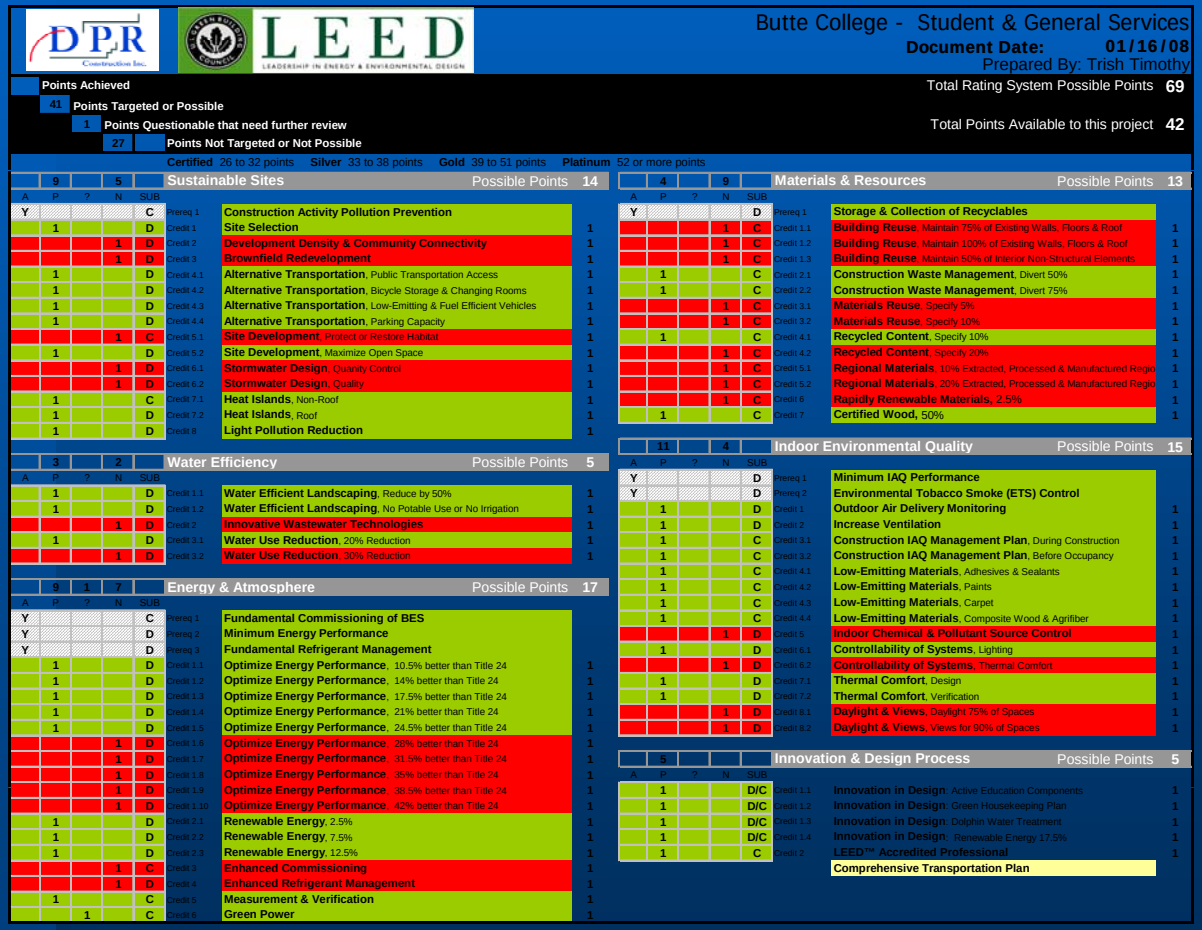
Butte College

Student and General Services

- **LEED costs money but payback is fast and on-going**
- **$13.7 million construction costs**
- **$265K LEED costs**
- **Title 24 – 30% or higher**
- **Payback is 4.5 years - on-going savings of $58,800/yr**
- **Utility and life cycle cost**
- **LEED Certified Silver Gold Platinum (maybe)**

$242 per sq. ft

Butte College



DPR Construction Inc. | LEED Leadership in Energy & Environmental Design

Butte College - Student & General Services

Document Date: 01/16/08

Prepared By: Trish Timothy

Points Achieved	
41 Points Targeted or Possible	
1 Points Questionable that need further review	Total Rating System Possible Points 69
27 Points Not Targeted or Not Possible	Total Points Available to this project 42

Certified 26 to 32 points **Silver** 33 to 38 points **Gold** 39 to 51 points **Platinum** 52 or more points

Sustainable Sites — Possible Points 14

A	P	?	N	SUB			
Y				C	Prereq 1	**Construction Activity Pollution Prevention**	
	1			D	Credit 1	**Site Selection**	1
			1	D	Credit 2	**Development Density & Community Connectivity**	1
			1	D	Credit 3	**Brownfield Redevelopment**	1
	1			D	Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
	1			D	Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
	1			D	Credit 4.3	**Alternative Transportation**, Low-Emitting & Fuel Efficient Vehicles	1
	1			D	Credit 4.4	**Alternative Transportation**, Parking Capacity	1
			1	C	Credit 5.1	**Site Development**, Protect or Restore Habitat	1
	1			D	Credit 5.2	**Site Development**, Maximize Open Space	1
			1	D	Credit 6.1	**Stormwater Design**, Quantity Control	1
			1	D	Credit 6.2	**Stormwater Design**, Quality	1
	1			C	Credit 7.1	**Heat Islands**, Non-Roof	1
	1			D	Credit 7.2	**Heat Islands**, Roof	1
	1			D	Credit 8	**Light Pollution Reduction**	1

Water Efficiency — Possible Points 5

A	P	?	N	SUB			
	1			D	Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	1			D	Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
			1	D	Credit 2	**Innovative Wastewater Technologies**	1
	1			D	Credit 3.1	**Water Use Reduction**, 20% Reduction	1
			1	D	Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Energy & Atmosphere — Possible Points 17

A	P	?	N	SUB			
Y				C	Prereq 1	**Fundamental Commissioning of BES**	
Y				D	Prereq 2	**Minimum Energy Performance**	
Y				D	Prereq 3	**Fundamental Refrigerant Management**	
	1			D	Credit 1.1	**Optimize Energy Performance**, 10.5% better than Title 24	1
	1			D	Credit 1.2	**Optimize Energy Performance**, 14% better than Title 24	1
	1			D	Credit 1.3	**Optimize Energy Performance**, 17.5% better than Title 24	1
	1			D	Credit 1.4	**Optimize Energy Performance**, 21% better than Title 24	1
	1			D	Credit 1.5	**Optimize Energy Performance**, 24.5% better than Title 24	1
			1	D	Credit 1.6	**Optimize Energy Performance**, 28% better than Title 24	1
			1	D	Credit 1.7	**Optimize Energy Performance**, 31.5% better than Title 24	1
			1	D	Credit 1.8	**Optimize Energy Performance**, 35% better than Title 24	1
			1	D	Credit 1.9	**Optimize Energy Performance**, 38.5% better than Title 24	1
			1	D	Credit 1.10	**Optimize Energy Performance**, 42% better than Title 24	1
	1			D	Credit 2.1	**Renewable Energy**, 2.5%	1
	1			D	Credit 2.2	**Renewable Energy**, 7.5%	1
	1			D	Credit 2.3	**Renewable Energy**, 12.5%	1
			1	C	Credit 3	**Enhanced Commissioning**	1
			1	D	Credit 4	**Enhanced Refrigerant Management**	1
	1			C	Credit 5	**Measurement & Verification**	1
		1		C	Credit 6	**Green Power**	1

Materials & Resources — Possible Points 13

A	P	?	N	SUB			
Y				D	Prereq 1	**Storage & Collection of Recyclables**	
			1	C	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
			1	C	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
			1	C	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
	1			C	Credit 2.1	**Construction Waste Management**, Divert 50%	1
	1			C	Credit 2.2	**Construction Waste Management**, Divert 75%	1
			1	C	Credit 3.1	**Materials Reuse**, Specify 5%	1
			1	C	Credit 3.2	**Materials Reuse**, Specify 10%	1
	1			C	Credit 4.1	**Recycled Content**, Specify 10%	1
			1	C	Credit 4.2	**Recycled Content**, Specify 20%	1
			1	C	Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regio	1
			1	C	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regio	1
			1	C	Credit 6	**Rapidly Renewable Materials**, 2.5%	1
	1			C	Credit 7	**Certified Wood**, 50%	1

Indoor Environmental Quality — Possible Points 15

A	P	?	N	SUB			
Y				D	Prereq 1	**Minimum IAQ Performance**	
Y				D	Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	
	1			D	Credit 1	**Outdoor Air Delivery Monitoring**	1
	1			D	Credit 2	**Increase Ventilation**	1
	1			C	Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
	1			C	Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
	1			C	Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
	1			C	Credit 4.2	**Low-Emitting Materials**, Paints	1
	1			C	Credit 4.3	**Low-Emitting Materials**, Carpet	1
	1			C	Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber	1
			1	D	Credit 5	**Indoor Chemical & Pollutant Source Control**	1
	1			D	Credit 6.1	**Controllability of Systems**, Lighting	1
			1	D	Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
	1			D	Credit 7.1	**Thermal Comfort**, Design	1
	1			D	Credit 7.2	**Thermal Comfort**, Verification	1
			1	D	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
			1	D	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Innovation & Design Process — Possible Points 5

A	P	?	N	SUB			
	1			D/C	Credit 1.1	**Innovation in Design**: Active Education Components	1
	1			D/C	Credit 1.2	**Innovation in Design**: Green Housekeeping Plan	1
	1			D/C	Credit 1.3	**Innovation in Design**: Dolphin Water Treatment	1
	1			D/C	Credit 1.4	**Innovation in Design**: Renewable Energy 17.5%	1
	1			C	Credit 2	**LEED™ Accredited Professional**	1

Comprehensive Transportation Plan

Butte College

Projects from Now to 2010

"What are we planning on doing…"

- ***Construct New Instructional Arts Facility- Steel going up in June!**
- **Construct New Student/General Services Facility – Bid open on June 10, 2008!**
- **Student Center Renovation (CC) – Start planning fall 2008**
- **Complete Campus Wide Landscaping, Master Plan – 2009/10**
- **Upgrade Electrical System – 2009/10**
- **Network/Fiber Optic/Telecommunications – In Planning**
- **Upgrade Campus Intersections/Traffic Light – summer 2008**
- **Roadway Lighting – 2009/10**
- **Bus Terminal – 2009/2010**

***State funding for Library, LRC and IA = $39,547,000.00**

Butte College
Three Reasons for Success

1. Collaboration
2. Collaboration
3. Collaboration

It is all about Leadership!

BUTTE - GLENN COMMUNITY COLLEGE DISTRICT

BUTTE COLLEGE

The CCC / IOU Partnership

Program Overview and Status

Lisa Hannaman
Account Executive
Southern California Edison

CCC/IOU Energy Efficiency Partnership

- **The 2006-2008 CCC-IOU Energy Efficiency Partnership is designed to**
  - **Identify energy savings opportunities**
  - **Provide funding and support for energy efficiency projects**
  - **Provide a framework and mechanism for the implementation of a comprehensive sustainability policy**
- **The Partnership is comprised of four key elements**
  - **Retrofit projects – *Includes IT Energy Efficiency Projects***
  - **Monitoring-Based / Retro-Commissioning (MBCx / RCx) projects**
  - **New Energy Efficient Construction (e.g. Central Plants)**
  - **Training and Education activities**
- **Anticipate continued funding in 2009 – 2011**
  - **But need active involvement from CCC Districts to ensure ongoing IOU investment; portfolio will be "project based" using FUSION and actual district input**
  - **Integration of all New Construction through the Partnership program**

Who is involved?

- **All four Investor-owned Utilities**
  - **SCE, SDG&E, SCG, PG&E**
- **CCC Chancellor's Office**
- **All CCC Districts**
- **Newcomb | Anderson | McCormick**
  - **Program administration and management**

2008 Incentive Levels

	Measure	Incentive Rate
Electric	Packaged HVAC, HVAC Controls, Motors, Drives (Note: IOUs record HVAC savings form IT projects but pay no incentive)	$0.24/kWh
	Lighting, Lighting Controls, Daylighting	$0.15/kWh
	Central Plants, Chiller Retrofits, Whole Building, and other major Energy Efficiency Infrastructure Projects	$0.32/kWh *
	MBCx	$0.32/kWh *
	Plug and Process Loads - *IT Project Savings Incentive*	$0.15/kWh
Gas	All Gas Measures	$1.00/therm

* $0.24/kWh in SCE territory

Be a LEADER in Energy Efficiency!

How to Participate

Work in Partnership with the Utilities to:

- **Develop a local Sustainability / Energy Policy**
- **Brainstorm ideas for energy savings opportunities at your campus with your Staff and Utility representative**
  - **New Construction Bonds are a significant opportunity to "design in" energy efficiency**
- **Consider performing an Energy Audit at your campus**
- **Attend a Partnership training and education session**
- **Contact local utility representative and request assistance with Project Application form for CCC-IOU Partnership**
- **Engaging other departments on campus that may have energy saving opportunities (such as IT and Foodservice)**

Act now to make the most of these BENEFITS to your District.
The Partnership Team is here to help!

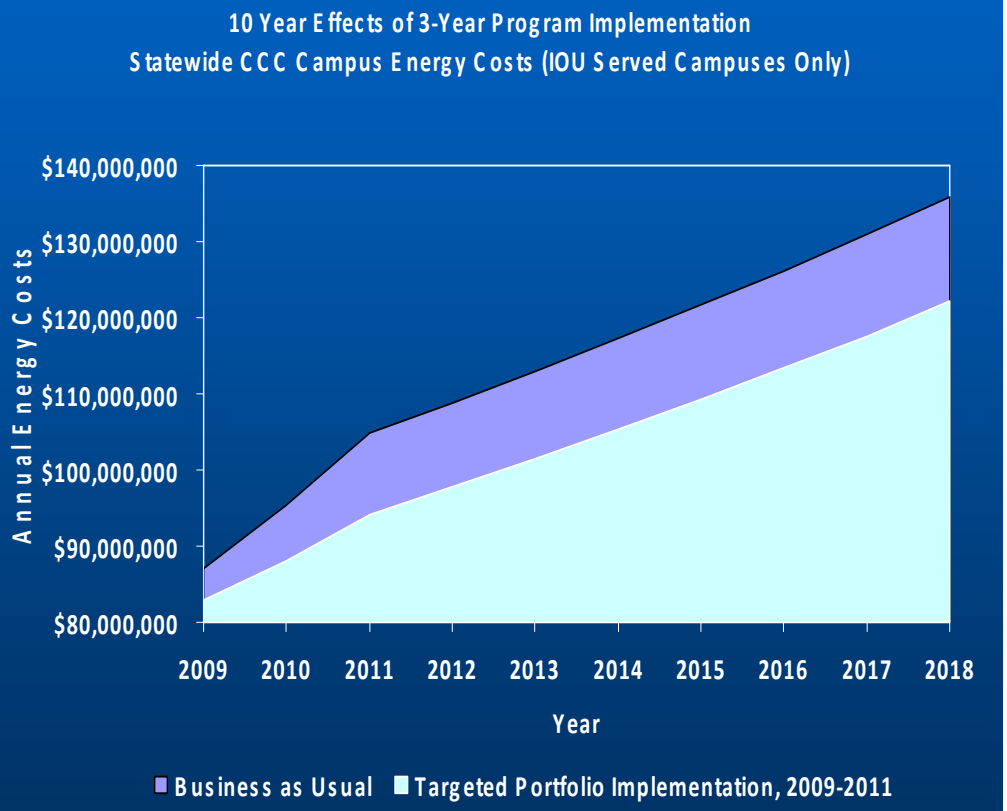
2009-2011 Partnership Planning

Estimated Life Cycle Benefits
of Targeted Portfolio Implementation

10-Year Cumulative Energy Impacts
Energy Cost Savings: $86,896,938
Electricity Savings: 725,562,048 kWh
Natural Gas Savings: 23,080,884 therms

10-Year Overall Costs[1]
Business as Usual: $6,447,469,907
With Efficiency Projects[2]: $6,405,745,461
Overall Benefit to CCC: $41,724,446

Notes:
1) SMSR, Capital Outlay, energy costs
2) Includes reduction in energy costs and incentives
3) All figures are 10-year NPV, 2008 dollars



Partnership Process – *how to get the money!*

- **Develop energy savings calculation**
- **Submit Project Application (Form 2 or NRR-DR) to IOU**
- **Pre-construction field verification**
- **Project Implementation**
- **Notification to IOU of completion**
- **Post-construction field verification**
- **IOU payment of incentive check**

Process Details

- **Project Application**
  - **Two parts:**
    - **Incentive application**
    - **Project information**
- **Energy Savings Calculations**
  - **Calculation subject to audit by CPUC**
  - **IOUs have developed Excel-based calculator for Server Virtualization projects**
    - **Calculates energy savings**
    - **Calculates estimated incentive**
  - **May use own calculation, if desired**

Your local IOU Account Representative can assist you with these steps!

Savings By Design – New Construction

Proposed Changes for 2009-2011

- New Construction included in the Partnership program
- Owner Incentive from $150,000 to a maximum of $500,000
- Design team: $50,000 max, based on Owner Incentive, for a whole building project (something substantial or LEED)
- $5,000 Design Team Stipend for Integrated design
- 10% additional incentive for LEED certification
- 10% additional incentive for commissioning agents (enhanced-yes)
- 10% additional incentive for Measurement and verification after completion of the building.
- To summarize "kickers": a project can earn an additional 10% - 30% on top of their calculated Incentive.

Savings By Design – New Construction

- **SAVINGS BY DESIGN is a program to encourage high-performance nonresidential building design and construction. Sponsored by four of California's largest utilities under the auspices of the Public Utilities Commission, Savings By Design offers building owners and their design team a wide range of services:**
- **Design Assistance provides information and analysis tailored to the needs of your project to help you design the most efficient building possible.**
- **Owner Incentives help offset the costs of energy-efficient buildings.**
  - **Two Approaches for Participation:**
    - **Whole Building Approach**
    - **Systems Approach**
- **Design Team Incentives reward designers who meet ambitious energy efficiency targets under integrated design or Whole Building Approach.**

Owners and design team members are eligible to participate. Contact your utility New Construction Representative early in the design process to determine funding availability, to learn about other program options, and to enhance your project's energy efficiency potential.

Project must be located within the service territories of:

- **Pacific Gas and Electric Company**
- **San Diego Gas and Electric**
- **Southern California Edison Company**
- **Sacramento Municipal Utility District**

Additional Resources

- **Utility Program Portfolio**
  - California Solar Initiative (CSI)
  - Self Generation Incentive Program (wind, fuel cells)
  - Savings by Design (SBD)
  - Demand Response
  - Energy Watch Partnerships
  - Third-Party Programs
  - Utility Sponsored Climate Change Programs
- **Utility resource centers**
  - PG&E Pacific Energy Center (PEC)
  - SCE's Customer Technology Application Center (CTAC)
  - Agriculture Technology Applications Center (AGTAC)
  - SCE Ag Center in Tulare
  - Vocational Training (PG&E Stockton Training Center)
  - PG&E Food Service Technology Center
  - Sempra Energy Resource Center - Downey

Talk to your Utility Account Representative for more info!

How to Find the Money

- **Historical level of utility spending on utility programs = *$2 billion statewide over 3 years !!***
- **Energy $Mart**
  - **Contact: Patrick Mullen, Department of General Services, (916) 375-4617**
- **CEC Loan Program**
  - **Contact: Virginia Lew, California Energy Commission, (916) 654-3838**
- **Performance contracting – ESCO's**
  - **Customize approach to meet campus needs**
  - **Best source of information is from other CCC Districts**
- **Local and State Bonds**
- **Scheduled Maintenance Budget and Block Grant Funding**
- **Many projects pay for themselves in 3 - 5 years through avoided costs**

Contact Information – *how can we help you?*

Name	Organization	E-mail	Phone
Dan Estrada	CCCCO	destrada@cccco.edu	(916) 324-8901
Laura Wetmore	PG&E	llwe@pge.com	(415) 973-8993
Dave Hather	PG&E	dth2@pge.com	(916) 386-5007
Lisa Hannaman	SCE	lisa.hannaman@sce.com	(714) 895-0616
Michael Lo	SCE	michael.lo@sce.com	(626) 302-3818
Sheri Gates	SDG&E/SCG	SLGates@semprautilities.com	(858) 654-1232
Linh-Chi Hua	SDG&E	LHua@semprautilities.com	(858) 654-8704
Bob Bradshaw	Citrus CCD	bbradshaw@citruscollege.edu	(626) 857-4113
Ron Beeler	North Orange County CCD	rbeeler@nocccd.edu	(714) 808-4893
Larry Eisenberg	LA CCD	eisenblh@email.laccd.edu	(213) 891-2366
Jose Nunez	San Mateo CCD	nunezj@smccd.edu	(650) 358-6836
Mike Miller	Butte-Glenn CCD	millermi@butte.edu	(530) 895-2381
Jo Ann Higdon	Cerritos CCD	jhigdon@cerritos.edu	(562) 860-2451
Jeff Kingston	Chabot/Las Positas CCD	JKingston@clpccd.org	(925) 485-5244
Ann McCormick	NAM	ann_mccormick@newcomb.cc	(415) 896-0300
Matt Sullivan	NAM	matt_sullivan@newcomb.cc	(415) 896-0300

For more information check Program Web Site at:
www.cccutilitypartnership.com